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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,817	12/13/2001	Ilan Levy	01/22952	6282

7590

09/21/2006

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EXAMINER

MAIER, LEIGH C

ART UNIT

PAPER NUMBER

1623

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/009,817	<b>Applicant(s)</b> LEVY ET AL.	
	<b>Examiner</b> Leigh C. Maier	<b>Art Unit</b> 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-119 is/are pending in the application.
- 4a) Of the above claim(s) 13-104 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 105-119 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Status of the Claims*

Claims 1, 6, 11 and 105 have been amended. Claims 106-119 are newly added. Claims 1-119 are pending. Claims 13-104 are withdrawn from further consideration as being drawn to nonelected inventions and currently non-elected species.

Any objection or rejection not expressly repeated has been withdrawn. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Claim Rejections - 35 USC § 112*

Claims 1-10, 12 and 105 are again rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, as set forth in the previous Office action. Claims 11 and 106-119 are now included in this rejection.

Claim 1 recites a “process of manufacturing a polysaccharide containing material having at least one *desired* structural, chemical, physical, electrical and/or mechanical property ...” (emphasis added) However, there is no description of what these “desired” properties might be. Therefore, it would appear that the outcome of the process depends on what happens to be in the mind of the artisan approaching the process. Because of this, one of ordinary skill would not be apprised of the metes and bounds of the claims.

Applicant’s arguments filed July 6, 2006 have been fully considered but they are not persuasive.

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Applicant contends that the specification gives numerous examples of each property. However, the indefiniteness does not lie in the particular properties, but in the particular level or extent of the particular property. Applicant states that a particular structural property could include a “predetermined level” of crosslinking. The examiner does not find any difference between “desired” and “predetermined” because these are not limitations in the claims but rather dependent on the thinking of the artisan.

The claim further recites treating the polysaccharide structures “before, during and/or after processing said polysaccharide structures into the polysaccharide containing material.” Therefore the independent claim covers any time during the “lifetime” of the polysaccharide structure and polysaccharide-containing material. However, claims 2, 3 and 4 are limited to “before,” “during” and “after,” respectively, but there does not appear to be any particular distinction in these time periods. For example, take the processing of cellulose into paper: Cellulose exists in a tree and eventually ends up as a substance recognizable as paper. There are a number of steps between cutting down the tree and ending up with paper. It is not clear at what point in this process “before” becomes “during.” Furthermore, it appears that the distinction between “during” and “after” would depend on the desired ultimate product.

Applicant notes that there are four steps in papermaking, with the first one being forming an aqueous suspension of cellulosic fibers. So if the process is conducted “before,” it is prior to the suspension of the cellulose? Furthermore, take Applicant’s example of yarn and knit fabric, it still appears to depend on what the artisan’s intentions are. If the particular artisan ultimate desired product is yarn, then conducting the process on yarn would be considered “after.” However, if the desired product were knit fabric, it would be considered during (or before?).

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The examiner maintains that in view of the foregoing, the claims are rendered vague and indefinite.

Further regarding claim 105, the claim has been amended “thereafter covalently coupling at least one moiety or group to said polysaccharide binding domain composition.” It is not clear what Applicant intends in covalently binding something to a composition.

Further regarding claims 108 and 114, these claims recited that the attachment is “via covalent bonding, ionic bonding, hydrophobic bonding, hydrogen bonding, protein translation or protein expression.” It would appear that the last two, “protein translation or protein expression,” are simply methods of producing a product and effecting some sort of bonding rather than a type of bonding per se.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 105-112 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that Applicant, at the time the application was filed, had possession of the claimed invention. As noted above, claim 105 has been amended. In addition to the new amendment being vague and indefinite, the examiner does not find support of description of this process, as newly amended, in the specification.

***Claim Rejections - 35 USC § 103***

Claims 1-11 and 113-119 rejected under 35 U.S.C. 103(a) as being unpatentable over Bates et al (WO 97/07203).

Bates teaches as set forth above. The reference does not exemplify each material recited in claim 5 at every stage of processing (“before,” “during” or “after”). However, each of these exemplifications is expressly suggested, as cited previously. The reference further teaches the use of various enzymes with binding domains, such as cellulase, as previously discussed or amylase and glucosidase, which bind starch in paper. These enzymes are used to modify the properties of the paper and/or to impregnate “effector moieties” onto the paper surface.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a multiple enzymes, such as the starch-binding ones disclosed, at any stage of processing into a polysaccharide-containing material with a reasonable expectation of success for the additive effects disclosed by Bates.

Claims 1-12, 113-115 and 117-119 rejected under 35 U.S.C. 103(a) as being unpatentable over Schulein et al (US 5,792,641).

Schulein teaches the use of cellulase fusion proteins for processes, such as textile treatment and paper pulp processing. The cellulase variants may have more than one cellulose binding domain (CBD). See abstract. The reference expressly suggests modifying a cellulase by the introduction of a CBD from a different enzyme. See, for example, col 5, lines 10-16. The reference does not exemplify the use of an enzyme having more than one CBD covalently attached.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to prepare a cellulase variant, having more than one CBD, such as those taught by Schulein with a reasonable expectation of success because it is expressly suggested in the reference. One of ordinary skill would be motivated to prepare this variant and use it in a process for the modification of polysaccharides, as disclosed in the reference.

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

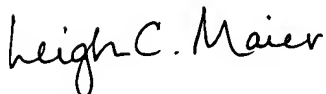
***Examiner's hours, phone & fax numbers***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Maier whose telephone number is (571) 272-0656. The examiner can normally be reached on Tuesday, Thursday, and Friday 7:00 to 3:30 (ET).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Anna Jiang (571) 272-0627, may be contacted. The fax number for Group 1600, Art Unit 1623 is (571) 273-8300.

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Leigh C. Maier  
Primary Examiner  
September 18, 2006